

The Egg Capsules of *Lepsiella vinosa* (Lamarck, 1882) (Muricidae : Thaidinae)

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SUMMARY

Egg capsules of *Lepsiella vinosa* are described and compared with published accounts of those of other Australian muricids. Capsules of *L. vinosa* are laid separately in the intertidal zone, are lens-shaped, and approximately 4 mm in diameter and 1.4 mm high. Capsules contain about 7 eggs which hatch as young snails. The breeding biology of *L. vinosa* is compared with that of other Australian and New Zealand muricids.

INTRODUCTION

The only Australian thaid egg capsules described are those of *Cronia avellana* (Reeve, 1846) and *C. pseudamygdala* (Hedley, 1903) by Phillips, (1975); *Thais orbita* (Gmelin, 1971) by Hedley (1906) and Phillips (1969); and *Morula marginalba* (Blainville) by Anderson (1965). Egg capsules and breeding biology of the New Zealand thaid *Lepsiella scobina* (Quoy and Gaimard) were described by Graham (1941) and Fearon (1962). *Lepsiella vinosa* (Lamarck, 1882) is a small prosobranch which occurs in the littoral zone on rocky shores around southern Australia (Synnot and Wescott, 1976). *L. vinosa* ranges from Jervis Bay, New South Wales, to Cockburn Sound in Western Australia, (MacPherson and Gabriel, 1962; Synnot, unpub. data).

This paper describes the egg capsules, number of eggs per capsule, and hatching time of *L. vinosa*.

MATERIALS AND METHODS

Egg capsules of *L. vinosa* were collected from the following localities: Flinders (11/8/74), Apollo Bay (10/8/76), Point Roadknight (23/8/77), Corinella (20/9/77), Bird Rock, Western Port Bay (1/5/78), and Barry's Beach, Phillip Island (11/12/78). Capsules were identified by reference to egg capsules laid by *L. vinosa* in the laboratory, and specimens in the F.V. Murray spawn collection (National Museum of Victoria). The specimens from Flinders were maintained in seawater (approx. 14°C) in the laboratory under an artificial tidal cycle whose periodicity was similar to that in the field, and embryonic development was observed daily.

The height, diameter, and width of the hatching aperture of each capsule were measured using a Zeiss Binocular microscope with a calibrated eyepiece graticule. Values are given in the text as mean \pm S.E.

RESULTS

Egg capsules of *L. vinosa* were observed in the field between May and December on sheltered coasts, and between August and December on exposed coasts (Flinders, Apollo Bay). The egg capsules of *L. vinosa* are laid separately and are cemented to the substrate. Capsules were found in and around colonies of the encrusting serpulid worm *Galeolaria caespitosa*, under rocks, and in the empty valves of the mussel *Brachidontes rostratus*. The capsules are lens-shaped, and have a flat semi-transparent basement membrane (Fig 1.). The upper dome is translucent, except for a circular transparent area through which hatching occurs. Two suture lines run from this central area to the edge of the capsule. Measurements of 11 capsules are: diameter 4.2 ± 0.2 mm; height 1.4 ± 0.03 mm; hatching aperture 0.98 ± 0.02 mm; eggs per capsule, 7.5 ± 0.41 (range 6-9). The eggs are suspended in a colourless fluid, are light orange in colour, and have a diameter of $901 \pm 6.5 \mu$. Only one of the capsules collected from Flinders (11/8/1974) and maintained in the laboratory hatched; the remaining five turned deep purple, and were found to be infected by nematodes. The time period from collection to hatching was 34 days, and the size of young at hatching (largest dimension) was 2.14 ± 0.04 mm ($n = 5$). This capsule contained nine eggs when collected, but no remains of the other four eggs were found in the capsule prior to hatching. The eggs which did not develop may be "nurse" eggs which were eaten by the surviving individuals. The young emerged as crawling juveniles.

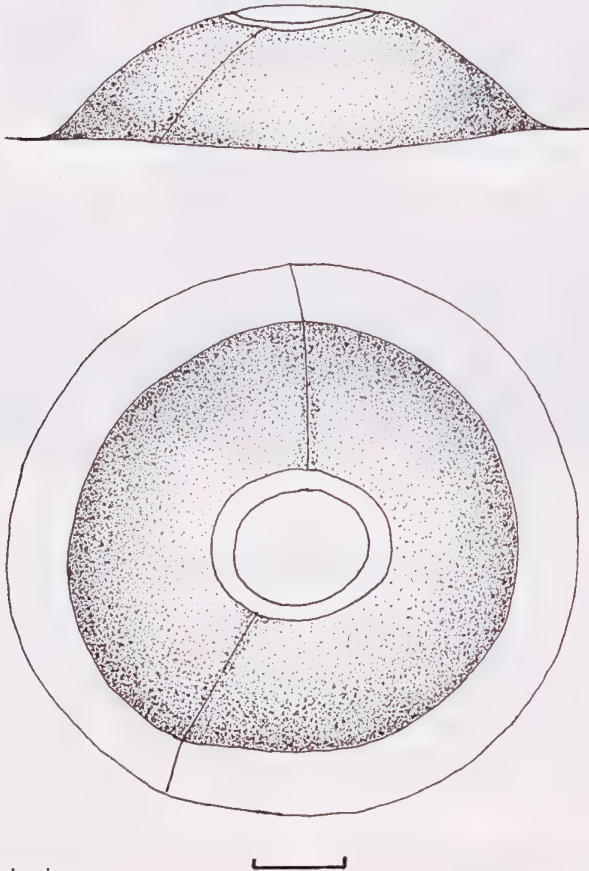


Fig. 1.

Egg Capsule of *L. vinosa*.
(Scale bar = 1mm.)

DISCUSSION

Egg capsules of *L. vinosa* closely resemble those of *Bedevea hanleyi* and *Bedevea paivae* (Muricidae: Muricinae) described by Anderson (1965) and Black (1976) respectively, and are similar to those of *Cronia avellana* described by Phillips (1975). The capsules of these species can be distinguished by the number of eggs present (6-9 eggs/capsule for *L. vinosa*; 50-70 for *B. hanleyi*; 54-106 for *C. avellana*), and by the symmetry of the sutural lines on the upper surface (asymmetrical in *L. vinosa*; symmetrical in *B. hanleyi*; reduced or absent in *C. avellana*).

The collection dates for egg capsules of *L. vinosa* indicate an eight month difference in reproductive period on Victorian shores. As the spawning behaviour of thaid molluscs has been correlated with food availability (Spight and Emlen, 1976), populations of *L. vinosa* which feed in or close to spawning areas (Barry's Beach, Bird Rock) may spawn throughout the year. However, where areas to lower intertidal spawning areas (Flinders) (Synnot, pers. obs.) frequency of spawning may be reduced.

The laboratory observations suggest that *L. vinosa* (Thaidinae) and *Bedevea hanleyi* (Muricinae) are the only Australian muricids in which direct development and nurse eggs are known to occur. *Lepsiella scobina* of New Zealand also displays these characteristics (Fearon, 1965). This is consistent with the argument of Spight (1977), that among muricids of rocky shores, species at high latitudes metamorphose before hatching (*Lepsiella*, *Bedevea*), whilst more tropical species (*Morula*, *Cronia*) have planktonic larvae. Further studies of Australian muricids, particularly those with wide latitudinal ranges, should enable muricid reproductive patterns to be more fully appraised.

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